

Link between polar bears and global warming

1. Motivation behind Research Paper

For the past two years, we have been studying with the hope of raising awareness of global warming through polar bears at the Life Shining Seminar. The reason why I chose the Life Seminar is because I wanted to make people aware of the current state of global warming through animals and show how they are having difficulty surviving. However, when I started my research, I did not know which animals were badly affected by global warming. So, when I first started my research, I investigated which animals were under severe conditions for survival due to the effects of global warming. As we investigated, it turns out that the polar bears are in such a serious situation that they are classified as a potential endangered species due to cannibalism, the melting of the Arctic ice and the difficulty in obtaining food.

2. Introduction

I wanted to see if there was anything we could do to mitigate the current state of global warming, and to convey that through the polar bear, which has become an “icon of global warming.” Therefore, I decided to examine the relationship between global warming and polar bears by referring to books, etc. I would like to introduce the mechanism of global warming and countermeasures from the things I investigated. The Earth’s atmosphere has a greenhouse effect. If there were no greenhouse effects, the average temperature of the earth would be -19°C , but due to

the greenhouse effect, the average temperature is 14°C, which is suitable for living things.

Gases that cause the greenhouse effect are called greenhouse gases. Carbon dioxide accounts for the most of the greenhouse gases emitted by humans. Currently, the concentration of carbon dioxide in the atmosphere is increasing rapidly, and the average temperature of the earth is rising. Concentrations of carbon dioxide are increasing as humans burn fossil fuels and cut down forests that serve as carbon sinks. As a countermeasure against such global warming, it is recommended to properly separate and save electricity and water. However, Japan ranks 45th in the global warming achievement rate ranking. If you look at why Japan's rate of global warming prevention is so low, it can be pointed out that the Japanese people's awareness of the problem of global warming is low. Therefore, the purpose of this research was to change their awareness of global warming.

3. Results and Analysis

1. Making slides about polar bears and global warming

In the process of researching the literature, I found a slideshow for learning the current state of polar bears for young children on the Polar Bears International website. There, the issue of global warming was explained in an easy-to-understand manner, even for children, in connection with the ecology of polar bears. However, there were English and French slides, but no Japanese slides. Therefore, I decided to translate this PowerPoint into Japanese so that it would be possible to study in Japanese as well.

2. Visit to Tennoji Zoo

During the winter vacation (January 2022) of my second year of high school, I went to Tennoji Zoo. Listening to the explanation by Takakazu Imanishi, Vice Director of Tennoji Zoo, I was able to learn more specifically about the current situation of polar bears. When I asked if the behaviour of polar bears had changed due to the progress of global warming, he explained that there had been no major changes. I saw a poster about global warming prevention in the polar bear section of Tennoji Zoo. Therefore, I thought it might be possible to produce posters for the prevention of global warming at schools and display them at schools to enlighten students. It represents the melting of the earth due to global warming. However, we ourselves have had few experiences with posters that have left an impression on us at school, or that have inspired us to put something into practice. I thought about it, so this plan was also a blank slate.

3. Global warming countermeasures at school

When I was thinking about measures to prevent global warming that anyone can continue to do, I learned that the lights at our school are often left on. I wanted to find out how long the lights were left on, so I checked to see if all the toilets in the school were turned off before the first class. The table below shows how long the toilet lights were left on for over four days.

1 floor boy	×	×	×	○
1 floor girl	×	○	×	×
2 grade boy	○	○	○	○
2 grade girl	×	○	○	○
3 grade boy	×	×	×	×
3 grade girl	×	×	×	×
1 grade boy	○	×	○	×
1 grade girl	○	×	×	
3 floor boy	×	×	×	×

Figure 1. Table showing light usage at Nara Kokusai High School.

○ indicates that the lights were on, and × indicates that the lights were off.

As you can see from this table, the lights were left on almost every day in the restroom mainly used by the second graders, next to the infirmary, and in the restroom mainly used by the third graders. I investigated to eliminate the state of leaving the toilet lights on. This was done by pasting an illustration of a polar bear on the electric switch of the toilet. The purpose of pasting the illustration of a polar bear was to show the relationship between turning off the lights in the toilet and global warming.

1 floor boy	×	×	×	○
1 floor girl	○	○	○	○
2 grade boy	×	○	○	×
2 grade girl	×	○	○	○
3 grade boy	○	×	○	○
3 grade girl	○	○	○	×
1 grade boy	×	×	×	×
1 grade girl	×	×	×	○
3 floor boy	×	×	○	×

Figure 2. Table showing light usage after the experiment

This is the electricity situation after pasting the illustration of the polar bear. It can be seen that the electricity was off in the bathrooms with the illustration pasted, compared to the bathroom without the illustration pasted. Many of the toilets mainly used by third graders were out of order. However, the bathroom, which is mainly used by second graders, was not very effective. I will continue to put up posters of polar bears as they are.

4. Conclusion and Future Problems

Through the two years of research, and by putting a polar bear illustration on the light switch in the bathrooms around the school, a tendency to turn out the lights was observed. In other words, we thought that we could achieve the purpose of raising awareness about global warming. Also, we were not able to make good use of the poster production and the slides translated into Japanese by Polar Bears International.

5. Reflection

Through this research, I believe that if we had taken more action, the current state of global warming could have been better than it is now. However, through this research, I was happy to see that just by putting up posters calling for the improvement of global warming where people could see it, the number of people who wastefully left the lights on decreased compared to before the experiment. Also, looking at the results, I think that I was able to achieve the goal of raising people's awareness of global warming to some extent compared to the beginning.

6. Work Cited

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